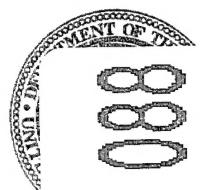




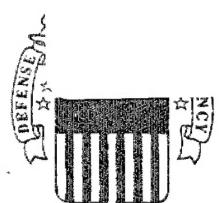
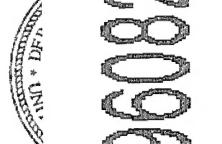
CALS TEST NETWORK

AFCTN Test Report 93-075

AFCTB-ID
93-089



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88
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Technical Raster Transfer

using:

Cubic Defense Systems' Data

MIL-R-28002A (Raster)

Quick Short Test Report

18 September 1993

Prepared for

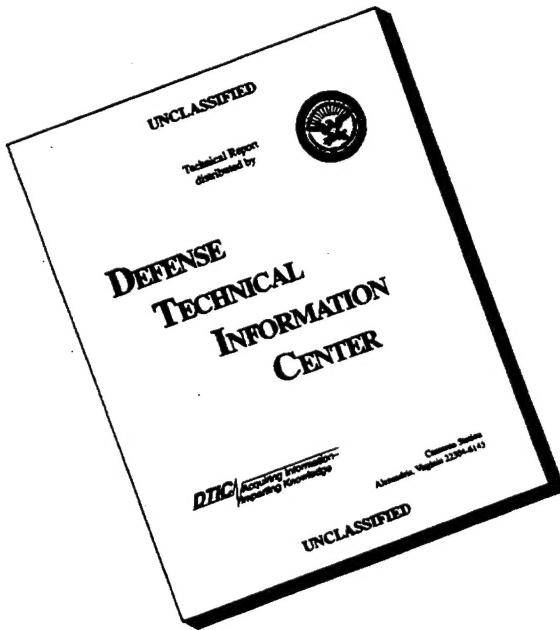
Electronic Systems Center

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**Technical Raster Transfer
Using:
Cubic Defense Systems' Data**

MIL-R-28002A (Raster)

Quick Short Test Report

18 September 1993

Prepared By
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Wright-Patterson AFB, OH 45433

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1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Cubic Defense System's interpretation and use of the CALS standards, in transferring technical Raster data. Cubic Defense Systems used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 93-089

Date of Evaluation: 18 September 1993

Evaluator:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/ENCP
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
John Akin
Cubic Defense Systems
9333 Balboa Avenue
San Diego CA 92186-5587
(619) 277-6780 X 2785

Data Description:
Technical Raster Test
3 Document Declaration files
14 Raster files

Data Source System:
1840
HARDWARE
Unknown

SOFTWARE
Unknown

Raster
HARDWARE
Unknown

SOFTWARE
Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.10 UNIX*
XSoft *CAPS/CALS v40.4*

PC 486/50

AFCTN *Tapetool v1.2.10 DOS*

MIL-R-28002 (Raster)

SUN SparcStation 2

ArborText *g42tiff*

Carberry *CADLeaf Plus v3.1*

AFCTN *validg4*

AFCTN *calstb.475*

AFCTN *xrastb.sun4*

IGES Data Analysis (IDA) *IGESView v3.0*

Island Graphics *IslandPaint v3.0*

PC 486/50

IDA *IGESView Windows*

Inset Systems *HiJaak Window v1.0*

Standards

Tested:

MIL-STD-1840A

MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN Tapetool v1.2.10 utility. No errors were encountered while evaluating the contents of the tape labels.

A note was reported on the tape label version. MIL-STD-1840A permits the use of both version three and four. The use of the most current standard should be used and noted.

The tape was read using the XSoft CAPS read1840A utility. Because of errors in the Raster header files, XSoft's tool quit reading the tape after the first reported error.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file. The CALS data file headers in the first two documents were bad. What appears to be stray characters were inserted into the header which caused several software tools to report errors. File D003R001 was correct. Shown below is the header file from D001R001. The headers varied between files but this is typical of the results.

```
srcdocid: NONE
figid: 0J åkæSF|0
srcgph: NONE
doccls: NONE
nphn ù| +σdú d+~δHσLσ&|███+b1 = █r[> ॥mUUΔ åðr Ñ█] ?█ i█δ█
rorient: NONE
rdensity: NONE
notes: NONE
```

Because of errors in the Raster header files, this portion of the tape does not meet the CALS MIL-STD-1840A requirements.

4. IGES Analysis

The tape contained no Initial Graphics Exchange Specification (IGES) files.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included on this tape.

6. Raster Analysis

The tape contained 14 Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported all files, except D003R001, do not meet the CALS MIL-R28002A specification. This utility reported the errors in the CALS headers.

The files were read into the AFCTN *xrastb.sun4* viewing utility. All files, except D003R001, could not be viewed. This utility read the data in the CALS header and would not process the files because of missing data. File D003R001 could be read and viewed without a problem.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were converted using ArborText's *g42tiff* utility without a reported error. The resulting files were read into Island Graphics' *IslandPaint* and displayed.

The Raster files were read into Carberry's *CADLeaf* software. This software reported errors in all files except D003R001. However, the software was able to read and display the images on the screen.

The files were read into IDA's *IGESView*. This software was able to read, display, and print the files. All files, except D003R001, were reported as having an error. *IGESView* for Windows read and displayed the files without a reported error.

All files, except D003R001, could not be read into Inset Systems' *HiJaak for Windows*. This software program reported that the files were invalid files of a different flavor.

Only file D003R001 could be converted using Rosetta Technologies' *Prepare* without a reported error. All of the

other files were reported as being in error and would not process. The resulting file from D003R001 was read into Preview, displayed, and printed.

The Raster files do not meet the CALS MIL-R-28002A specification because of errors in the header files. Software that looked at this data would not process the files.

7. CGM Analysis

The tape contained no Computer Graphics Metafile (CGM) files.

8. Conclusions and Recommendations

The tape from Cubic Defense Systems had no reported errors in physical structure. The header files of all but one of the Raster files contained bad data which prevented the files from passing the validation process. This portion of the tape does not meet the CALS MIL-STD-1840A requirements.

The errors with the Raster images are serious. The CALS header contained invalid data which caused several of the tools, available in the AFCTB, not to process the files. Software tools that do not check the CALS headers were able to read and display the files. All of Raster files, except D003R001, do not meet the CALS MIL-R-28002A specification.

The tape submitted by Cubic Defense Systems does not meet the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information
ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
for Information Interchange
ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Sat Sep 18 10:10:17 1993

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set017

Page:
1

File Name Extracted	File Type	Record Format/ Block Selected/ Length Length/Total

D001 Extracted	Document Declaration	D/00260 02048/000001
D002 Extracted	Document Declaration	D/00260 02048/000001
D003 Extracted	Document Declaration	D/00260 02048/000001
D001R001 Extracted	Raster	F/00128 02048/000010
D001R002 Extracted	Raster	F/00128 02048/000003
D001R003 Extracted	Raster	F/00128 02048/000005
D001R004 Extracted	Raster	F/00128 02048/000007
D001R005 Extracted	Raster	F/00128 02048/000012

D001R006	Raster	F/00128 02048/000013
Extracted		
D001R007	Raster	F/00128 02048/000006
Extracted		
D002R001	Raster	F/00128 02048/000015
Extracted		
D002R002	Raster	F/00128 02048/000006
Extracted		
D002R003	Raster	F/00128 02048/000007
Extracted		
D002R004	Raster	F/00128 02048/000013
Extracted		
D002R005	Raster	F/00128 02048/000006
Extracted		
D002R006	Raster	F/00128 02048/000012
Extracted		
D003R001	Raster	F/00128 02048/000058
Extracted		

Catalog Process terminated normally.

9.2 Tape Evaluation Log

Air Force CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)
Standards referenced:

ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Sat Sep 18 10:10:04 1993

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01

3

Label Identifier: VOL1
Volume Identifier: CALS01
Volume Accessibility:
Owner Identifier:
Label Standard Version: 3

*** NOTE (ANSI X3.27; 8.3.1.8) - The Label Standard Version
should be 4 to represent the current level of ANSI X3.27.

HDR1D001 CALS0100010001000100 93253 93253 000000DECFILE11A

Label Identifier: HDR1
File Identifier: D001
File Set Identifier: CALS01
File Section Number: 0001
File Sequence Number: 0001
Generation Number: 0001
Generation Version Number: 00
Creation Date: 93253
Expiration Date: 93253
File Accessibility:
Block Count: 000000
Implementation Identifier: DECFILE11A

HDR2D0204800260

00

Label Identifier: HDR2

Recording Format: D
Block Length: 02048
Record Length: 00260
Offset Length: 00

***** Tape Mark *****

Actual Block Size Found = 2048 Bytes.

Number of data blocks read = 1.

***** Tape Mark *****

EOF1D001 CALS0100010001000100 93253 93253 000001DECFILE11A

Label Identifier: EOF1
File Identifier: D001
File Set Identifier: CALS01
File Section Number: 0001
File Sequence Number: 0001
Generation Number: 0001
Generation Version Number: 00
Creation Date: 93253
Expiration Date: 93253
File Accessibility:
Block Count: 000001
Implementation Identifier: DECFILE11A

EOF2D0204800260 00

Label Identifier: EOF2
Recording Format: D
Block Length: 02048
Record Length: 00260
Offset Length: 00

<<<< PART OF LOG FILE REMOVED HERE >>>>

***** Tape Mark *****

End of Volume CALS01 #####
End Of Tape File Set

Deallocating /dev/rmt0...

Tape Import Process terminated with 0 error(s), 0 warning(s),
and 1 note(s).

9.3 Tape File Set Validation Log

Air Force CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Sat Sep 18 10:10:17 1993

MIL-STD-1840A File Set Evaluation Log

File Set: Set017

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: CUBIC DEFENSE SYSTEMS INC. 9333 BALBOA AVE. SAN DIEGO, CA 92123
FSCM 94987
srcdocid: 1473045
srcrelid: NONE
chglvl: 3,3,19930308
dteisu: 19770324
dstsys: AD/YIC
dstdocid: NONE
dstrelid: NONE
dtetrn: 19930908
dlvacc: A011R, E010R
filcnt: R7
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Document/Drawing List
docttl: ADHESIVE

Found file: D001R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

MM

*** ERROR (MIL-STD-1840A; 5.1.4) - Colon missing in Raster header field.

*** NOTE - The header record will be given the value NONE.

*** NOTE - Correction made in new Raster Header File.

*** ERROR (MIL-STD-1840A; 5.1.4) - No field name or value given for 'dstdocid: '.

*** NOTE - The header record will be given the value NONE.

*** NOTE - Correction made in new Raster Header File.

✉

*** ERROR (MIL-STD-1840A; 5.1.4) - Colon missing in Raster header field.

*** NOTE - The header record will be given the value NONE.

*** NOTE - Correction made in new Raster Header File.

* ~~ΦyfèΣp4►r«σ£V1◀ 8-âA-LÖ•B>c<çÜçTÖ:h#68↓è_4Σ.¶|~~ ~~üC↓↔dpLq!E~~

9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001'      ' ---  
/cals/caps/Bin/read1840A: --- Read declaration file 'D002'      ' ---  
/cals/caps/Bin/read1840A: --- Read declaration file 'D003'      ' ---  
/cals/caps/Bin/read1840A: file error: expected 'srcdocid...', saw 'MM'
```

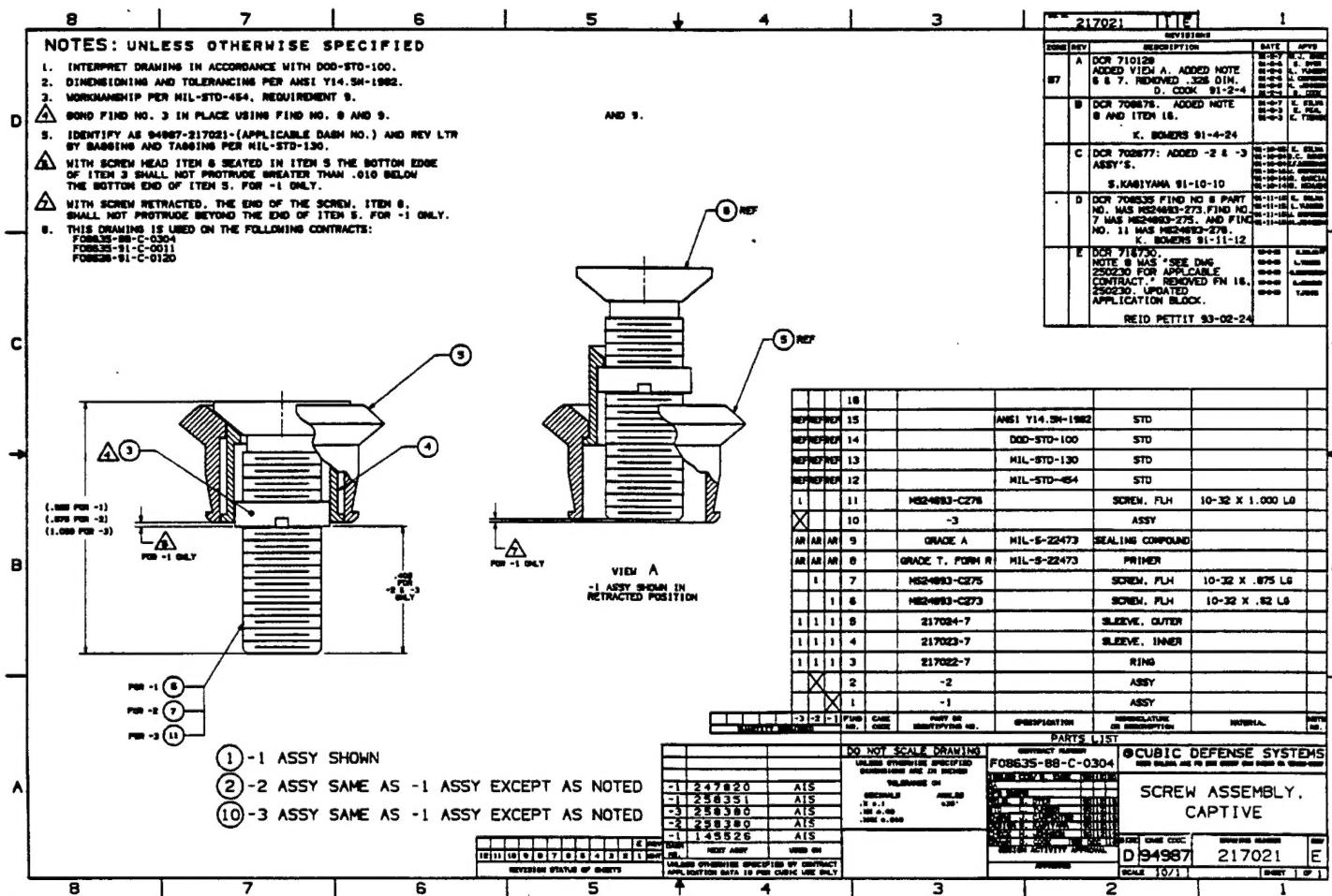
10. Appendix D - Detailed Raster Analysis

10.1 File D003R001

10.1.1 Output HiJaak for Pro

8	7	6	5	4	3	1	
						217021	1
						REVISIONS	
DATE	APPROV						
81-1-7	K. BOMERS						
81-1-8	K. BOMERS						
81-1-9	K. BOMERS						
81-1-10	K. BOMERS						
81-1-11	K. BOMERS						
81-1-12	K. BOMERS						
81-1-13	K. BOMERS						
81-1-14	K. BOMERS						
81-1-15	K. BOMERS						
81-1-16	K. BOMERS						
81-1-17	K. BOMERS						
81-1-18	K. BOMERS						
81-1-19	K. BOMERS						
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81-1-241	K. BOMERS						
81-1-242	K. BOMERS						
81-1-243	K. BOMERS				</td		

10.1.2 Output IGESView



10.1.3 Output Preview